

**REMARKS**

This is a full and complete response to the Office action dated June 5, 2006.

All comments and remarks of record are herein incorporated by reference. Applicants respectfully traverses these rejections and all comments made in the Office action. Nevertheless, in an effort to expedite prosecution, Applicants provides the following remarks regarding the cited references.

**DISPOSITION OF CLAIMS**

Claims 14-17 and 19-25 are pending in the application. Claim 14 and 15 have been amended with support found in the application on page 10, lines 4-22.

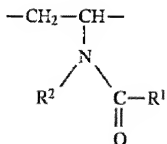
**REJECTION UNDER 35 USC §103**

Claims 14-17, 19-21 and 23-25 are rejected under 35 USC §103(a) as being unpatentable over **Keller et al.**, US 5,494,535 ("**Keller**") in view of **Kucera**, US 6,130,289. Applicants respectfully traverse this rejection.

In order to establish a prima facie case of obviousness, there must be (1) some suggestion or motivation to modify the references, (2) reasonable expectation of success and (3) the prior art reference must teach or suggest all of the claim limitations. See MPEP §2143.

Applicants respectfully assert that the cited references do not teach or suggest the instant claims, and that there is no motivation to modify the references to arrive at the claimed invention. Accordingly, Applicants respectfully submit that no prima facie case of obviousness has been established.

**Keller** indicates cleaned or chemically pretreated metal surfaces which are modified using a clear solution of amino-containing organic polymers. According to **Keller**, preferred organic polymers which contain amino groups are hydrolysis productions of polymers comprising units of formula (I). See column 1, line 65 to column 2, line 9. Formula (I) is shown as follows:



These polymers have a carbon-backbone and are substituted by amino-carboxyl-groups, which are converted into amino groups by hydrolysis of the mentioned polymer-precursors. Suitable examples of these hydrolysis products are mentioned in column 2, lines 40-46, comprising N-vinylformamide, N-vinyl-N-methyl-formamide, N-vinyl-acetamide, N-vinyl-N-methylacetamide, N-vinyl-N-ethyl-acetamide, N-vinyl-propionamide, and N-vinyl-N-methylpropionamide. **Keller** discloses in column 3, lines 1 to 25, suitable monomers, which can be introduced as co-monomers into the hydrolysis precursor, comprising different acrylates and/or maleates. All monomers that are suitable monomers for the hydrolysis precursors according to **Keller** are monomers that form polymers having a saturated straight C-C-polymer backbone chain having no cyclic or heterocyclic moieties in the backbone.

In contrast to the disclosure of **Keller**, in presently pending claim 14 a composition for treatment of metal surfaces is claimed, containing at least one polymer as component A composed of the structural element (1) and at least 3 structural elements selected from the group consisting of the compounds according to structures (2), (3), (4), or (5), wherein the polymer is prepared by polycondensation.

The group of units that form the group from which at least 3 structural elements are selected to form a co-polymer with structural element (1) differ from the polymers according to **Keller** because according to the present application, aromatic structural elements are part of the polymer backbone. Applicants respectfully assert this can be shown by the dashed bondings of structural elements (2) to (5), which show that the dashed bondings are suitable bondings that form the polymer backbone of the polymers. In addition, the fact that the polymeric backbone comprises aromatic moieties is based on the method for the preparation of the polymer (component A). According to amended claims 14 and 15, the polymer (component A) is prepared by condensation reaction of an

aldehyde with various aromatic compounds. The mechanism of this phenol resin type polymerization reaction is that the aromatic ring is attacked by an electron pair of the carbon atom of the aldehyde C=O bonding. A new carbon-carbon bond is formed between a carbon atom of the aromatic ring and the carbon atom of the C=O group of the aldehyde. After separation of one molecule of water, a second aromatic ring is attacked and a -CHR- bridge is formed (structural element (1)). The polymer is built up by subsequent addition of electrons of C-atoms of the aldehyde function to aromatic rings. Therefore, aromatic rings (at least three chosen from structural elements (2) to (5)) are part of the polymeric backbone of the polymer.

Whereas **Keller** disclose simple polymers having an aliphatic C-C backbone, according to presently pending claim 14, a composition is provided containing a polymer that has aliphatic structural elements (1) in combination with at least 3 different structural elements selected from the group consisting of structural elements (2) to (5) and forming aromatic or heteroaromatic and/or -cyclic moieties in the backbone, because of the preparation method of the polymer.

According to the Examiner a person having ordinary skill in the art is taught by **Kucera** to introduce aromatic structural elements into the polymer backbone according **Keller** in order to obtain a composition according to the presently pending claim 14.

**Kucera** disclose an aqueous phenolic resin dispersion including an aqueous continuous phase and dispersed within the aqueous phase the reaction product of a phenolic resin precursor and modifying agent wherein the modifying agent includes at least one ionic group and at least one functional moiety that enables the modifying agent to undergo condensation with a phenolic resin precursor. According to column 3, lines 37-56, a phenolic compound according to **Kucera** is a compound that includes at least one hydroxyfunctional group attached to a carbon atom of an aromatic ring. Illustrative phenolic compounds include unsubstituted phenol per se, substituted phenols such as alkylated phenols at multi-hydroxy phenols, and hydroxyl-substituted multi-ring aromatics. These compounds are reacted with an aldehyde compound, in arrive at the phenolic resins according to **Kucera**.

According to **Kucera**, the phenolic resin precursor is obtained after this reaction. See column 3, line 66 to column 4, line 8. These phenolic resin precursors are reacted with modifying agents, chosen from compounds containing at least 2 distinct functional moieties or groups. See column 4, lines 53-57. According to column 5, lines 4 to 37, preferred functional groups are sulphur containing functional groups like sulfphonates, sulphinates, sulfonates or hydroxyl groups.

This way of preparing polymers according to **Kucera** results in polymers in which functional groups that are connecting the monomers with phenolic precursors are part of the polymeric backbone. According to **Kucera**, a phenolic resin precursor containing optionally substituted phenols and aldehyde-elements is reacted with compounds having functional groups that are able to undergo a condensation reaction with the hydroxyl-groups of the phenol resin precursor. A condensation reaction is a reaction of two different functional groups, whereby another functional groups is obtained in the chain and water is released. The polymer backbone therefore is built up via formation of linking functional groups, such as, for example, an ether group.

In contrast to this, according to the presently pending claim 14, the composition for the treatment of metal surfaces contains a polymer in which aliphatic and aromatic monomers form the backbone, and functional groups like hydroxyl, sulphonic acid or nitrogen containing structural elements are attached to these aromatic compounds, but are not part of the backbone itself.

**Kucera** does not teach a person having ordinary skill in the art to use the specific structural elements (2) to (5) as co-monomers in a polymer and a composition for the treatment of metal surfaces, because **Kucera** teaches that a phenolic resin precursor shall be reacted with modifying agents to produce a polymer that has functional groups in the polymer backbone, whereas the polymer according to the presently pending claim 14 of the present application does not have functional groups in the backbone.

**Keller** does not suggest to a person having ordinary skill in the art to combine the vinylic polymer having only aliphatic C-C bonds in the backbone with **Kucera**, because according to **Keller**, only co-monomers shall be introduced in the backbone that are chosen from acrylates and/or maleates.

In addition, **Kucera** does not suggest combining polymers being built up from phenolic resin precursors and functional groups containing monomers with the aliphatic amino group substituted polymer of **Keller**.

Even if a person having ordinary skill in the art would combine both disclosures he or she would not arrive at a polymer according to presently pending claim 14, because none of the cited references teach that the combination of the structural element (1) and at least 3 structural elements selected from the group consisting of elements (2) to (5) make it possible to obtain a composition that is advantageously suitable for the treatment of metal surfaces.

Therefore, Applicants respectfully assert that a composition according to instant claim 14 is not obvious for a person having ordinary skill in the art in light of a combination of **Keller** with **Kucera**.


In addition, a composition for the deposition of metal or metal alloys on plastic surfaces according to presently pending claim 15, compositions according to claims 16 and 17, depending on claim 14, a process for the treatment of metal surface, wherein the metal surface is brought into contact with a composition as claimed in claim 14, as claimed in claims 19 and 20, a process as claimed in claim 21, a process for the deposition of metals and metal alloys on a plastic surface, wherein the plastic surface is brought into contact with a composition as claimed in claim 15, according to claim 23, and a composition as claimed in claim 15, as claimed in presently pending claim 25, are not obvious for one of ordinary skill in the art in light of the two cited references.

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**Conclusion**

Having addressed all issues set out in the Office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,  
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